Emergency and Education Communication Vehicle (E^{2}CV)

National Electronics and Computer Technology Center (NECTEC)
National Science and Technology Development Agency (NSTDA)
Ministry of Science and Technology

in collaboration with

Cisco Systems (Thailand), Ltd.

Project Rationale

- The Tsunami strike in the south of Thailand in December 2004 raised the need for an ad-hoc communication system for emergency response teams to report losses and coordinate rescue missions.

- As a response to the Government policy in ICT research programs for disaster management, NECTEC has initiated the E^{2}CV Project to develop a model vehicle for providing a high-capacity ad-hoc broadband access communication system in the event of emergency.

- During the non-emergency period, the model vehicle can be used for training emergency response teams/volunteers or providing broadband access services for rural schools and communities.

- MoU to be signed with Cisco Systems(Thailand) to support educational programs for rural schools and communities.

Objectives

- To design and develop a model emergency communication vehicle with a capability to provide telephone and broadband Internet access services for emergency response teams

- To drill and practice the system preparedness for emergency situations

- To deploy the system in rural schools/communities for educational purposes during the non-disaster period

- To provide a best practice example for telecommunication service providers on the preparation for mobile emergency services provisioning for disaster areas

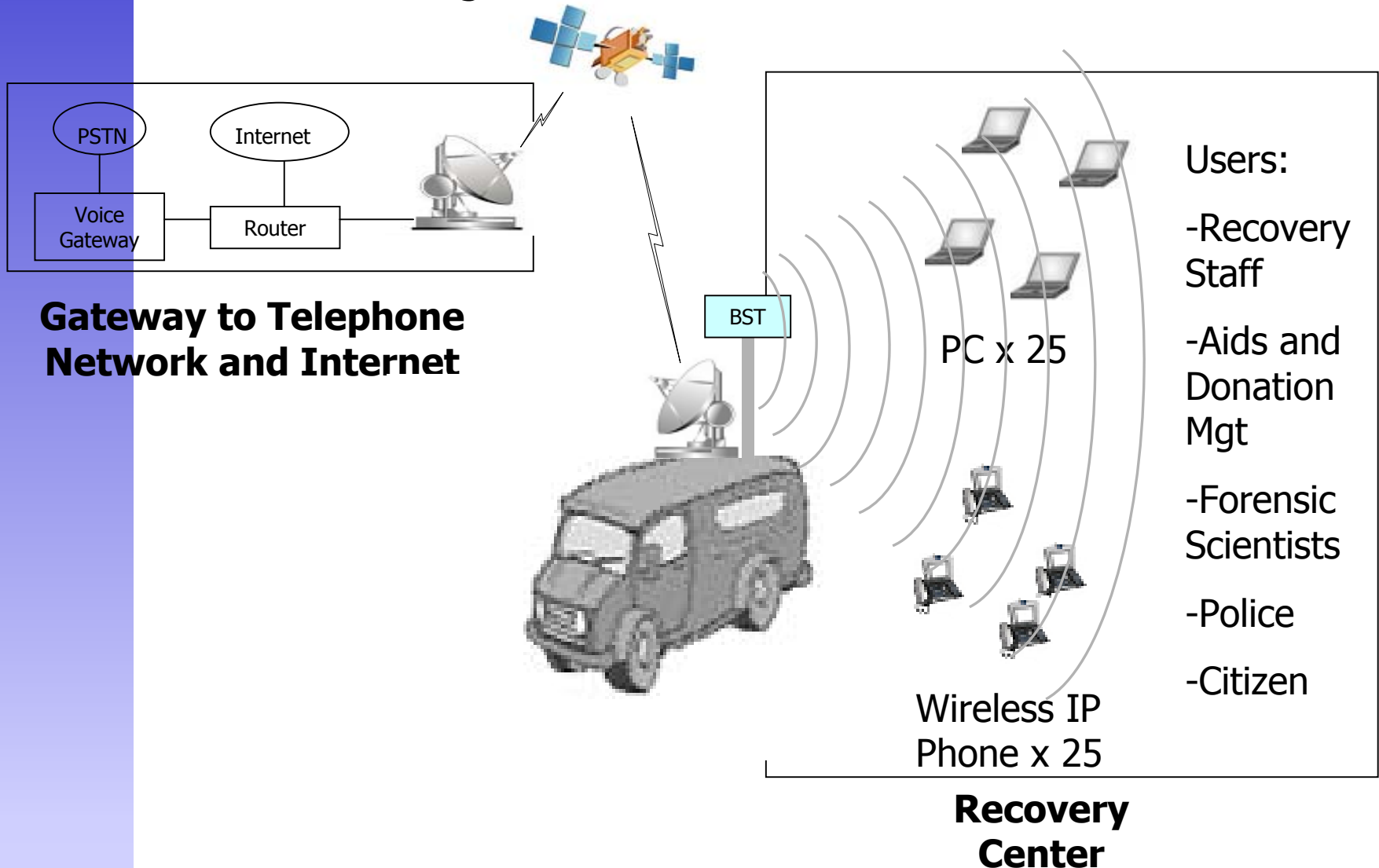# The Model Emergency and Education Vehicle (E²CV)

Technical Specifications

- Based on NECTEC's Rural Wireless Broadband Access (RWBA) Technology

- Support simultaneous 25 voice-conversations and 25 broadband Internet access terminals via wireless access within a radius of 2 kilometers around the vehicle (function at unlicensed 2.4 GHz frequencies)

- Equipped with power generators with capacity to support all system equipments operating continuously for 3 days

- Connect to backbone communication networks (telephone network and the Internet) through either satellite communication links (IP-Star Satellite) or terrestrial wireless links (Microwave, WiFi, WiMax)
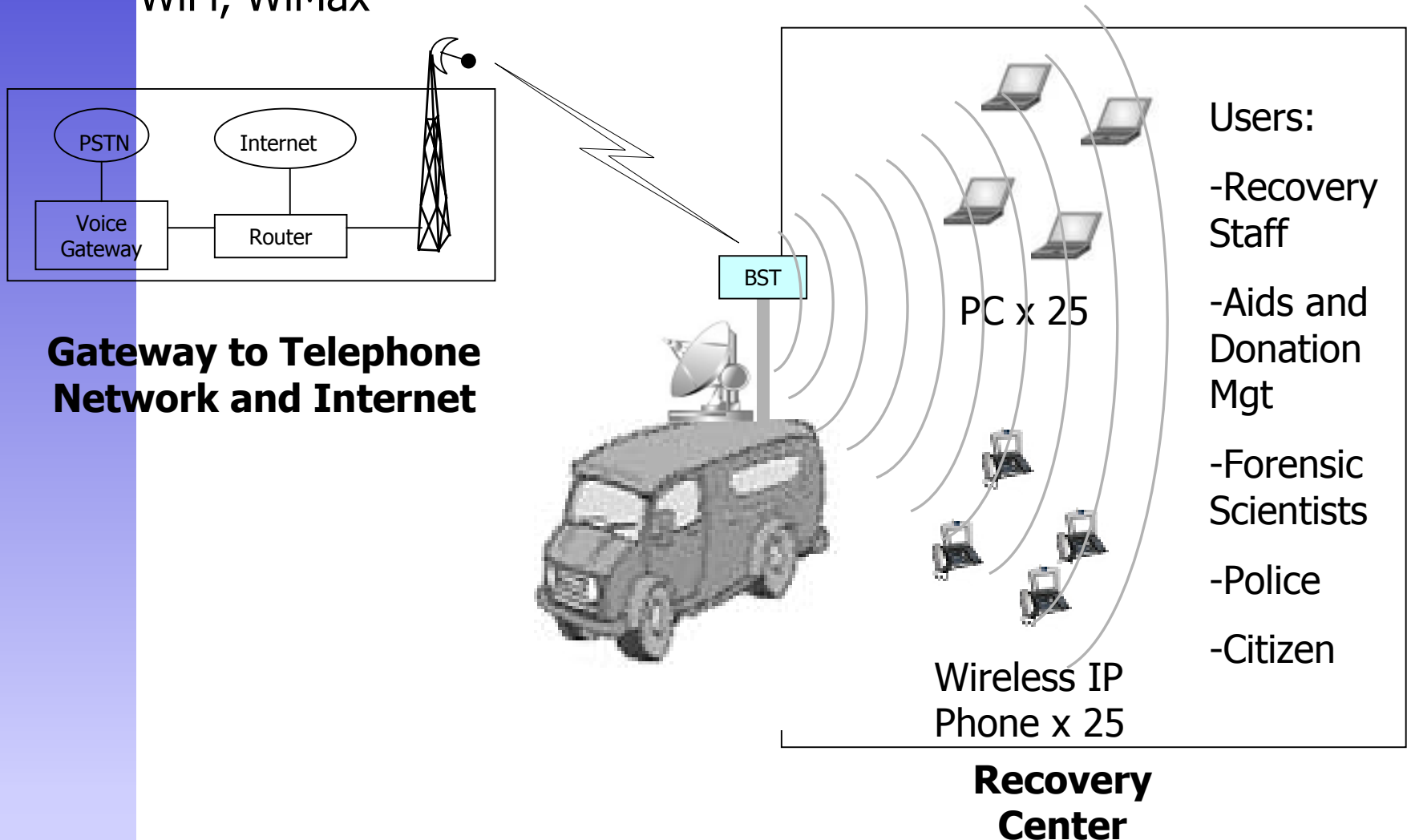
Connection to Backbone Networks

1. Connect through satellite communication links such as IP-Star

Gateway to Telephone Network and Internet

PSTN

Internet

Voice Gateway

Router

BST

PC x 25

Wireless IP Phone x 25

Users:

-Recovery Staff

-Aids and Donation Mgt

-Forensic Scientists

-Police

-Citizen

Recovery Center

Connection to Backbone Networks

2. Connect through terrestrial wireless links such as microwave, WiFi, WiMax

PSTN

Internet

Voice Gateway

Router

Gateway to Telephone Network and Internet

BST

PC x 25

Wireless IP Phone x 25

Users:

-Recovery Staff

-Aids and Donation Mgt

-Forensic Scientists

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Recovery Center

Vehicle Specifications

- Separated into two parts – the driving room and the operation room, with a suitable air conditioning system for the vehicle and all equipments

- 4-wheel drive, designed for accessing unpaved roads with level adjusting gears to level the vehicle horizontally during operation

- Capable of wading through 70-centimeter flood water-level and climbing 40-degree slopes

- Capable of carrying a total weight of 4.8 tons

- Equipped with an 18-meter telescopic tower which can be stretched up and retracted down to the vehicle when out of operation

Milestones for
the First-Year Pilot Operation

- March 30, 2006 : Opening ceremony at NSTDA Annual Conference by HRH Princess Maha Chakri Sirintorn.
- April 2006 : 1. Develop vehicle manuals 2. Develop curricula and training materials for emergency and educational programs 3. Recruit participants for emergency training and educational programs
- May 2006 : Begin emergency training programs
- June 2006 : Begin educational programs
- March 31, 2007 : End of the first-year pilot operation
- April 2007 : Develop a workplan for normal operation and transfer to interested parties

Thank you for your attention.